ato
AIR TRAFFIC ORGANIZATION

FAA's System Wide Information Management (SWIM) Program

Presented at ICNS 2005

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SWIM for Dummies

SWIM is:

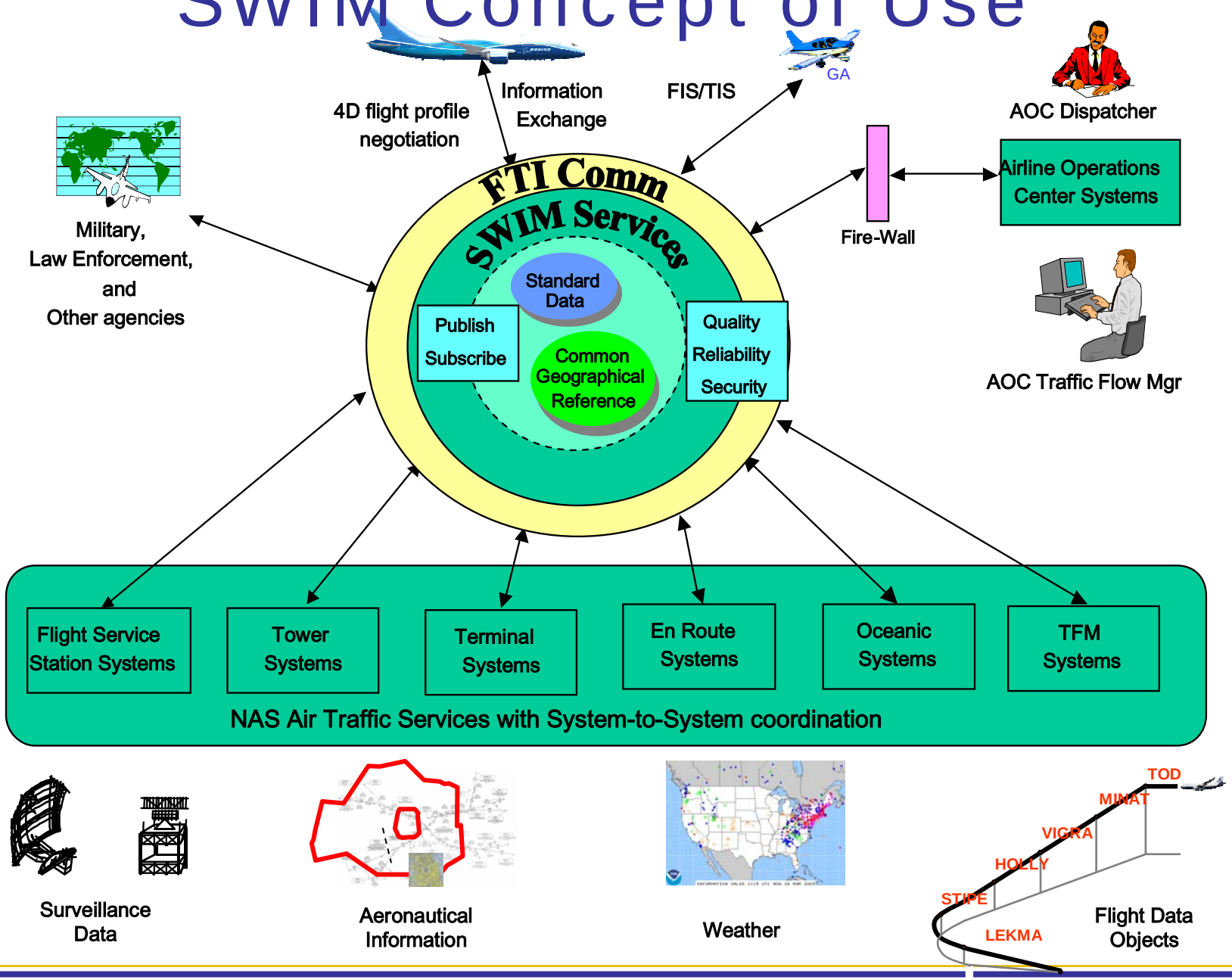
- NAS-wide information distribution and access mechanism for current and new applications
- Built on top of FTI for network connectivity and security
- 50% COTS, 30% custom software & 20% hardware providing services such as security, messaging, registry
- Non-proprietary, flexible, extensible, scalable solution to cost effectively meet current and future information requirements

SWIM is Not:

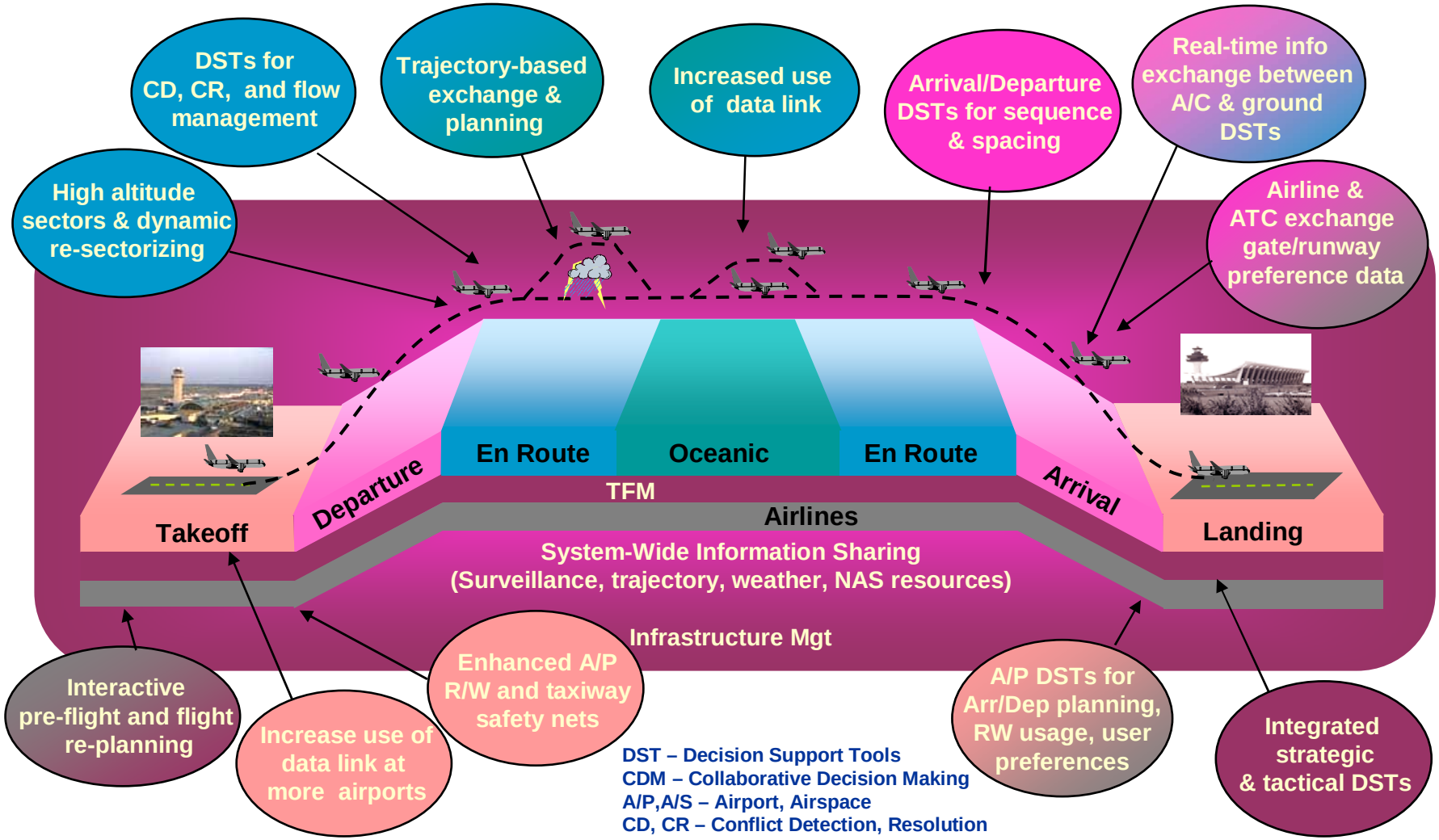
- A big system in a new facility
- A giant database
- A substitute for NAS modernization programs
- A set of applications
- An FTI replacement

SWIM implements a modern, system-wide approach to information management necessary to support improved operations and productivity in the NAS

SWIM Concept of Use

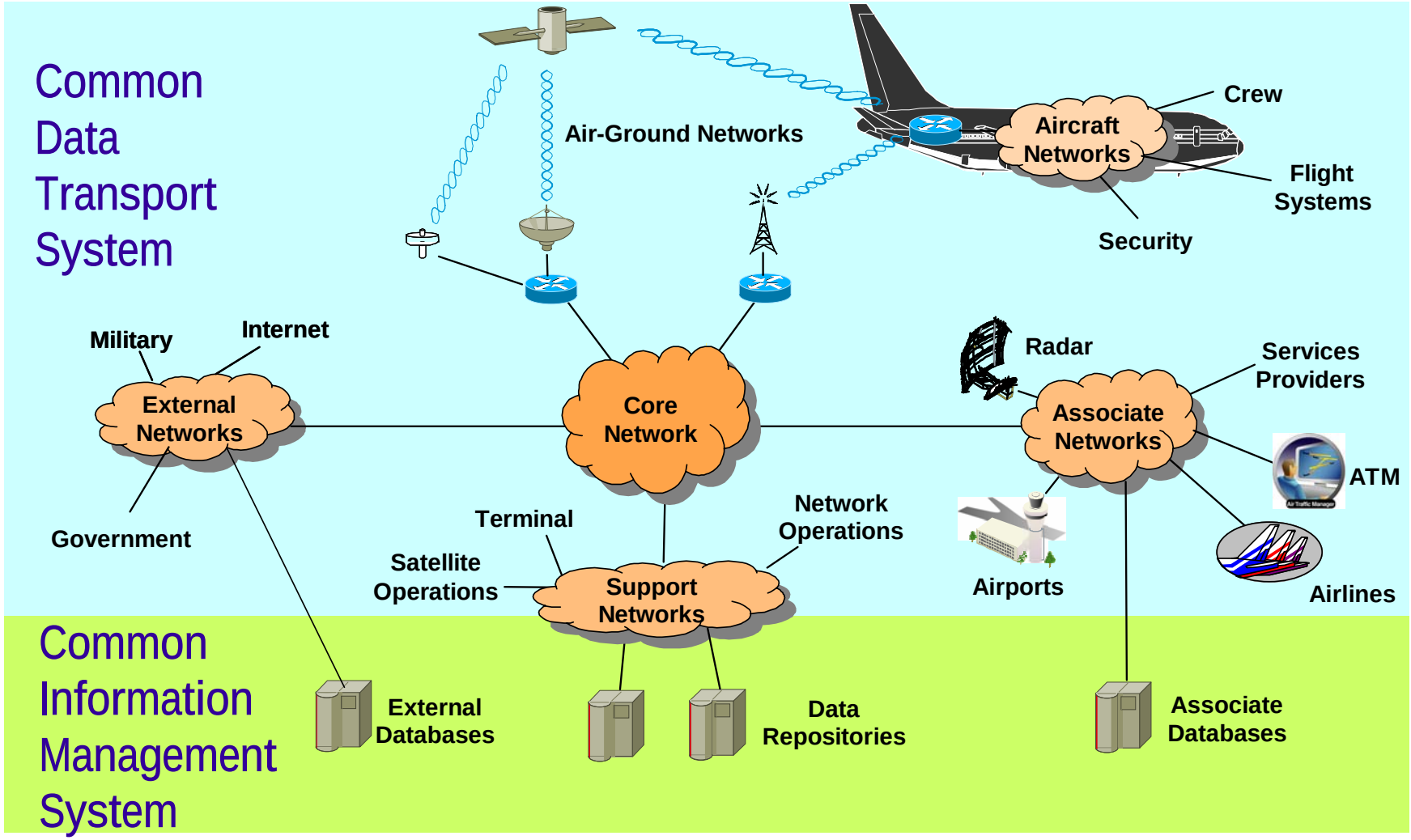


A Future ATM



All stakeholders require CDM, new DSTs & common information sharing …

SWIM: "The right data to the right user at the right time"

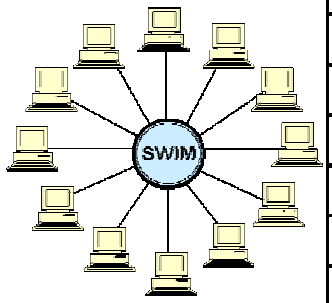


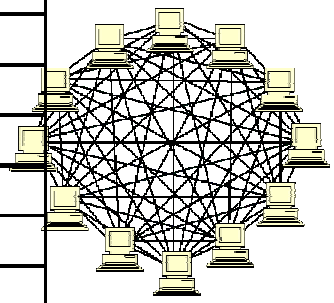
Operational Benefits of SWIM

- Provides common situational awareness
  - Sharing of information across all flight and information domains regardless of location (e.g., TMA and URET interaction)
- Standardized information security implementation
  - Individual user access control for both data and applications
- Agile NAS
  - Allows sharing of resources to meet fluctuating demand
  - Allows metrics measurement of action effectiveness
  - Simplifies interfacing to other agencies and users
  - Facilitates new NAS functionality (e.g., Free Flight, UAVs)
- Cost effective application development
  - Reuse of data models, security implementations and application interfaces
- FAA goal achieved for future capacity (3X)
  - Enables increased operational efficiency
  - Extends planning horizons
  - Improves decision support tools

Representative Order of Magnitude SWIM Savings

Information Migration Candidate	Key Related System	Number of Custom Interfaces
AIM	Aeronautical Information Management	21
ECG / ERAM / CARTS / STARS / ASDE	Surveillance Data Network and ERAM	70
TFM-M	Traffic Flow Modernization	11
WARP	Weather and Radar Processor	5
ERAM	En Route Automation Modernization	5
ITWS	Integrated Terminal Weather System	4
ECG	Air Route Surveillance Radar 4	3
CARTS / STARS	Airport Surveillance Radar - Model 9, 11	6
CIWS	Corridor Integrated Weather System	3
WMSCR	Weather Message Switching Center Replacement	3
STARS	Standard Terminal Automation Replacement System	2
ASDE-X	Airport Surface Detection Equipment Model X	1
12 Systems	**Totals**	**134**





Cost per incremental SWIM interface

$3-5M based on relative complexity to custom interface, plus significant re-use, learning, etc.

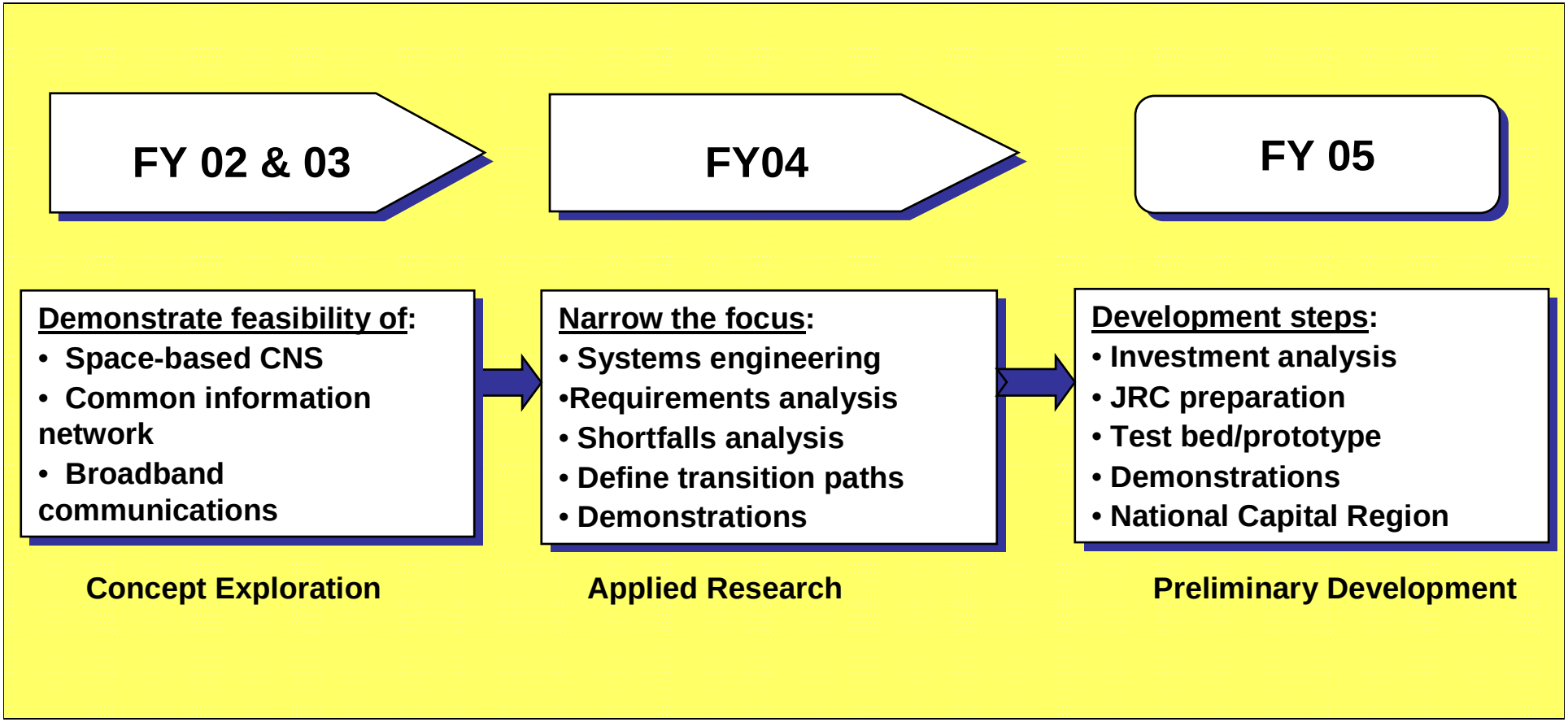
Cost per custom (App-to-App) interface

$3-5M based on recent experience on URET/WARP WINS

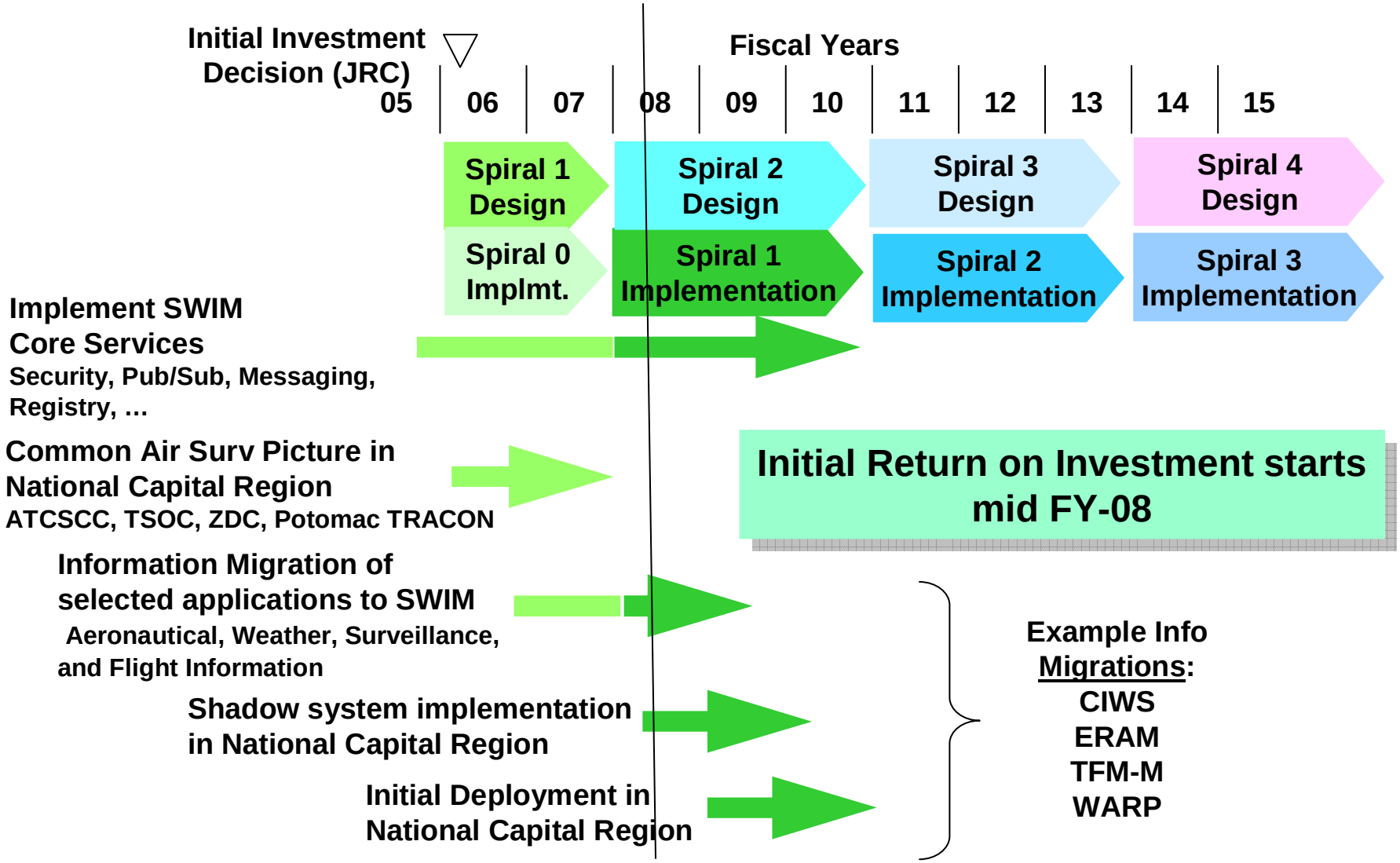
If all NAS Architecture 5.0 operational improvements were implemented in the traditional approach, building custom interfaces would cost $400M - $700M. A SWIM approach for the 12 systems would cost an estimated $30M - $60M.

SWIM Partners

SWIM Work Effort



Program Schedule Flow



SWIM Related Projects

- Global Communications, Navigation and Surveillance System (GCNSS) - Boeing
- NEO Security Demonstration – Boeing (Lockheed Martin, Raytheon, CSC)
- Automated Airborne Flight Alert System (AAFAS) - Teledyne
- Mobile Objects – Topia Ventures
- Enhanced Airspace Security – Lockheed Martin

Future Activities – FY06 and Beyond

- Continue architecture design and development
  - Refine A-level requirements
  - Develop SWIM B-level specifications
  - Develop SWIM interface control document
  - Define data standards
  - Refine SWIM architecture
  - SWIM software design/development SWIM hardware engineering
  - SWIM test plans
- Sustain core infrastructure
  - Network Enabled Operations security
  - Global interoperability

Future Activities – FY06 and Beyond

- Implement early applications
  - Surveillance Data Network
  - Weather
  - Aeronautical Information Manual
- Transformation system design and demonstrations
  - Working SOWs and task orders with legacy system contractors
  - Develop requirement changes to legacy systems
  - Develop architecture changes to legacy systems
  - Software and hardware design
  - Test planning
  - Lab equipment purchases
  - Shadow system at Tech Center
- Deployment
  - Provide security and collaboration benefits
  - Provide delay reduction benefits

Summary

- Only top-down, system-wide information management program
- Investment analysis indicates significant potential savings afforded by SWIM over program unique, application-to-application solutions

FAA is on-track in developing the artifacts and experience to justify implementing SWIM in the very near term

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